

MAIN CLAIM

System to lift and move an object from one location to another, composed of:

5 A partially hollow vertical post, equipped at its base with a rotating system using the post as its vertical axis and ensuring its solidity with the help of a support which could be the soil itself;

A lateral arm firmly held to the vertical post by a pivot and equipped with a rail on which a carriage moves.

10 One or many supporting arms firmly held to the vertical post used as a support to the lateral arm; and

A holding system for an object held by a cable to the lateral arm's carriage.

Characterized by mean of:

A lateral arm firmly held to the vertical post in ways that allow movement in any pattern passing by the axis of the post;

The vertical post equipped inside with a piston moving up and down, preferably under pressure created by a fluid, either liquid, gaseous or granular and preferably within such element as air, inert gases, synthetic or natural oil, mercury, water or sand;

25 The aforementioned piston being firmly held by a cable to the carriage moving in or on the lateral arm and forcing the holding system to remain at the same distance from the carriage no matter its position on the arm.

Claims

The principal aspect to be claimed with this invention is "the operation of the counterweight".

1. Its rising movement is made possible with low air pressure at four pounds per square inches (4PSI).
2. The sealing principle of the counterweight (piston) is to use air friction when it is moved through a small crack. This principle allows the creation of air pressure below the piston using very little air.
3. Another advantage with this principle is the fact that the small air leak created causes the piston to stay perfectly centered in the tube and eliminates wearing effect.
4. Along with insuring guiding and sealing, the use of this leaking system eliminates the need to pressurize the top of the piston or the use of air exhaust valve. This system requires only the reduction or closing of the air intake to allow the counterweight to lower simply by gravity thus rising the object.
5. It is impossible to abuse or break this equipment due to the fact that it can only lift 99% of the counterweight. Friction of mechanical elements is the reason for the 1% loss.
6. Using the supporting post as the compression chamber allows 360 degree continuous movement.
7. The closeness of the pulleys supporting the carriage system produce a breaking effect in the event the operator would try to rise too high the counterweight.
8. The counterweight can be of variable weight:

It is a container equipped with a trap on the bottom that allows rapid emptying.

This container is open on top. A tank installed on top of the equipment can be filled with granular material or liquid using quiet moments. A trap on its bottom is used to fill the counterweight container as required.

The method of bringing granular material or liquid can be achieved by using a ¼ HP small conveyor system with jars in a continuous movement.

Management of the counterweight can be made possible by using liquids (water, oil, mercury) or granular material (sand, steel balls, polymeric balls).

If mercury is chosen, everything must be done in closed circuit in order to avoid possible environment contamination. It must be noted that mercury has the advantage of being very compact although extremely expensive.